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OVERHOLTS¹⁸ has monographed the Polyporaceae of the central states, including the states extending from Ohio to North Dakota and southward to Kentucky and Kansas. He recognizes 132 species in 7 genera, the species of *Poria* and *Merulius* being omitted because "practically nothing is known of them at present." The large genus is *Polyporus*, with 88 species; following it are *Fomes* with 23 species and *Trameles* with 10 species. The keys and contrasted descriptions should make the identification of species comparatively easy. Perhaps the author is to be congratulated that he did not see fit to propose any new species.

SMITH¹⁹ has described 10 new species and 5 new varieties of algae from the lakes of Wisconsin, and also a new genus (*Gloeocystopsis*), which combines the external morphological characters of *Gloeocystis* and *Nephrocytium*.

STEVENS,²⁰ in a synoptical account of the species of *Meliola* occurring in Porto Rico, recognizes 95 species, and describes 62 of them as new.—J. M. C.

Sulphur nutrition.—Although sulphates have little effect on the soil flora, and cannot function therefore as important fertilizers for all crops, the fact that the sulphur content of most soils is rather low, and that certain classes of plants use considerable quantities of sulphur in metabolism, leads to the possibility of sulphur deficiency becoming in certain cases a limiting factor to crop production. HART and TOTTINGHAM²¹ have made some greenhouse studies on the relation of elemental sulphur and various sulphates to the nutrition of certain of the Leguminosae, Cruciferae, and Gramineae, groups differing somewhat in their need of sulphur. They find that sulphates may be beneficial to certain crops, even when functioning only as a source of sulphur.

Calcium sulphate in general gave better results than sodium sulphate. It increased the dry weight produced by red clover 23 per cent. With rape the greatest beneficial influence was noted when the calcium sulphate was used in addition to a complete fertilizer. The increase due to the sulphate in this case was 17 per cent. In both plants the roots were much elongated by the sulphate, so that a much larger volume of soil is laid under contribution to the plant, and its ability to withstand drought is much increased. The sulphate therefore not only meets the special needs of these plants for sulphur but improves the general physiological conditions.

¹⁸ OVERHOLTS, L. O., The Polyporaceae of the middle-western United States. Wash. Univ. Studies 3:3-98. pls. 8. 1915.

¹⁹ SMITH, GILBERT MORGAN, New and interesting algae from the lakes of Wisconsin. Bull. Torr. Bot. Club 43:471-483. 1916.

²⁰ STEVENS, FRANK LINCOLN, The genus *Meliola* in Porto Rico. Ill. Biol. Monographs 2:1-86. pls. 5. 1916.

²¹ HART, E. B., and TOTTINGHAM, W. E., Relation of sulphur compounds to plant nutrition. Jour. Agric. Research 5:233-249. 1915.

The grains, barley and oats, showed little effect on the quantity of straw, but a noticeable increase in seed production occurred on plants grown on the soil used (Miami silt loam).

Elemental sulphur, added as flowers, was usually toxic even in the presence of calcium, probably because of its incomplete oxidation to sulphites. Where bases are deficient, the toxicity may be due to accumulation of sulphuric acid from the complete oxidation of the sulphur.—CHARLES A. SHULL.

British Columbia forests.—Mount Robson, British Columbia, situated at practically the present northern known limit of the continental divide, has been visited by COOPER²² and found to possess 2 climax forest types, one for each of 2 climatic zones. Up to an altitude of 1000 m. the forest is of the Pacific Coast type, with a dominance of *Thuja plicata*. *Picea Engelmanni* is next in abundance, and is followed by *Abies lasiocarpa*, *Tsuga heterophylla*, and *Pseudotsuga mucronata*. The undergrowth shows such truly mesophytic forms as *Acer glabrum*, *Azaleastrum albiflorum*, *Phegopteris Dryopteris*, *Clin-tonia uniflora*, *Moneses uniflora*, and *Pyrola uliginosa*.

Above this is a subalpine zone extending up to 2000 m., with a climax forest of *Picea Engelmanni*, *Abies lasiocarpa*, and *Pinus albicaulis*. In the undergrowth *Menziesia ferruginea*, *Cornus canadensis*, and several species of *Pyrola* are conspicuous. The successions upon rock surface, talus, moraine, and shingle flat are noted, those of the two last in most detail. Upon the moraine *Dryas octopetala* and *Arctostaphylos rubra* are followed by shrubby species of *Betula* and *Salix*, leading to the third stage, which is the climax forest. A similar set of stages is found upon the shingle flat, although here, probably because of the lack of any fine soil material, the succession advances much less rapidly than upon the moraine.

While COOPER expresses regret at the few data available for this study, it will be welcomed as giving an insight into the vegetation of an almost unknown region.—GEO. D. FULLER.

Large trees.—A recent contest for two prizes of \$100 each, offered through the *Journal of Heredity*,²³ for photographs and data regarding the largest trees in the United States, barring conifers, resulted in photographs of 337 trees. The prize for the largest non-nut-bearing tree was won by a *Platanus occidentalis* near Worthington, Indiana, with a circumference, 5 ft. from the ground, of 42.25 ft., and a height of about 150 ft. The largest nut-bearing tree in the competition was a *Quercus lobata* on the foothills of the Sierra Nevada Mountains, in San Benito County, California, with a circumference of 37.5 ft. and a height of 125 ft. The largest specimens of other species were as follows: *Ulmus americana* at Morgantown, West Virginia, with a circumference of 33

²² COOPER, W. S., Plant succession in the Mount Robson region, British Columbia. *Plant World* 19:211-238. figs. 8. 1916.

²³ Photographs of large trees. *Jour. Heredity* 6:407-429. 1915.